

## Electronic Acknowledgement Receipt

|   |   |
|---|---|
| <b>EFS ID:</b>                              | 1819853   |
| <b>Application Number:</b>                  | 10619796  |
| <b>International Application Number:</b>    |   |
| <b>Confirmation Number:</b>                 | 7886  |
| <b>Title of Invention:</b>                  | Sparse and efficient block factorization for interaction data |
| <b>First Named Inventor/Applicant Name:</b> | Francis X. Canning  |
| <b>Customer Number:</b>                     | 20995   |
| <b>Filer:</b>                               | Lee W. Henderson/Glen Martell                                 |
| <b>Filer Authorized By:</b>                 | Lee W. Henderson  |
| <b>Attorney Docket Number:</b>              | CANNING.001CP2  |
| <b>Receipt Date:</b>                        | 29-MAY-2007   |
| <b>Filing Date:</b>                         | 15-JUL-2003   |
| <b>Time Stamp:</b>                          | 22:26:00  |
| <b>Application Type:</b>                    | Utility   |

### Payment information:

|  |        |
|--|--------|
| Submitted with Payment                   | yes    |
| Payment was successfully received in RAM | \$ 180 |
| RAM confirmation Number                  | 11986  |
| Deposit Account                          |        |

### File Listing:

| Document Number | Document Description | File Name | File Size(Bytes) | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|-----------|------------------|------------------|------------------|
|-----------------|----------------------|-----------|------------------|------------------|------------------|

|   |   |                         |         |     |    |
|---|---|-------------------------|---------|-----|----|
| 1   | Miscellaneous Incoming Letter                       | Transmittal_CANNING.pdf | 59062   | no  | 2  |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |
| 2   |   | Amendment_CANNING.pdf   | 614663  | yes | 14 |
|   | Multipart Description/PDF files in .zip description |                         |         |     |    |
|   | Document Description                                |                         | Start   | End |    |
|   | Amendment After Final                               |                         | 1       | 1   |    |
|   | Claims  |                         | 2       | 6   |    |
|   | Applicant Arguments/Remarks Made in an Amendment    |                         | 7       | 14  |    |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |
| 3   | Information Disclosure Statement (IDS) Filed        | IDS_CANNING.pdf         | 175797  | no  | 3  |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |
| This is not an USPTO supplied IDS fillable form |   |                         |         |     |    |
| 4   | NPL Documents                                       | NPL1_CANNING.pdf        | 181128  | no  | 8  |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |
| 5   | NPL Documents                                       | NPL2_CANNING.pdf        | 411345  | no  | 8  |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |
| 6   | NPL Documents                                       | NPL3_CANNING.pdf        | 5475158 | no  | 20 |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |
| 7   | NPL Documents                                       | NPL4_CANNING.pdf        | 470569  | no  | 11 |
| Warnings:                                       |   |                         |         |     |    |
| Information:                                    |   |                         |         |     |    |

|                     |               |                   |         |    |    |
|---------------------|---------------|-------------------|---------|----|----|
| 8                   | NPL Documents | NPL5_CANNING.pdf  | 114824  | no | 4  |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 9                   | NPL Documents | NPL6_CANNING.pdf  | 147125  | no | 4  |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 10                  | NPL Documents | NPL7_CANNING.pdf  | 1310037 | no | 18 |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 11                  | NPL Documents | NPL8_CANNING.pdf  | 235332  | no | 4  |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 12                  | NPL Documents | NPL9_CANNING.pdf  | 8321643 | no | 21 |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 13                  | NPL Documents | NPL10_CANNING.pdf | 120188  | no | 4  |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 14                  | NPL Documents | NPL11_CANNING.pdf | 6281590 | no | 19 |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 15                  | NPL Documents | NPL12_CANNING.pdf | 831103  | no | 20 |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |
| 16                  | NPL Documents | NPL13_CANNING.pdf | 3829105 | no | 15 |
| <b>Warnings:</b>    |               |                   |         |    |    |
| <b>Information:</b> |               |                   |         |    |    |

|                     |               |                   |         |    |     |
|---------------------|---------------|-------------------|---------|----|-----|
| 17                  | NPL Documents | NPL14_CANNING.pdf | 233593  | no | 7   |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 18                  | NPL Documents | NPL15_CANNING.pdf | 72930   | no | 2   |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 19                  | NPL Documents | NPL16_CANNING.pdf | 90734   | no | 2   |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 20                  | NPL Documents | NPL17_CANNING.pdf | 97777   | no | 3   |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 21                  | NPL Documents | NPL18_CANNING.pdf | 1108479 | no | 21  |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 22                  | NPL Documents | NPL19_CANNING.pdf | 2785699 | no | 28  |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 23                  | NPL Documents | NPL20_CANNING.pdf | 9787374 | no | 108 |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 24                  | NPL Documents | NPL21_CANNING.pdf | 2760393 | no | 52  |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |
| 25                  | NPL Documents | NPL22_CANNING.pdf | 3804863 | no | 44  |
| <b>Warnings:</b>    |               |                   |         |    |     |
| <b>Information:</b> |               |                   |         |    |     |

|                                     |                        |                   |          |    |    |
|-------------------------------------|------------------------|-------------------|----------|----|----|
| 26                                  | NPL Documents          | NPL23_CANNING.pdf | 2263861  | no | 64 |
| <b>Warnings:</b>                    |                        |                   |          |    |    |
| <b>Information:</b>                 |                        |                   |          |    |    |
| 27                                  | NPL Documents          | NPL24_CANNING.pdf | 2911844  | no | 70 |
| <b>Warnings:</b>                    |                        |                   |          |    |    |
| <b>Information:</b>                 |                        |                   |          |    |    |
| 28                                  | NPL Documents          | NPL25_CANNING.pdf | 706850   | no | 14 |
| <b>Warnings:</b>                    |                        |                   |          |    |    |
| <b>Information:</b>                 |                        |                   |          |    |    |
| 29                                  | NPL Documents          | NPL26_CANNING.pdf | 707018   | no | 14 |
| <b>Warnings:</b>                    |                        |                   |          |    |    |
| <b>Information:</b>                 |                        |                   |          |    |    |
| 30                                  | NPL Documents          | NPL27_CANNING.pdf | 6377672  | no | 23 |
| <b>Warnings:</b>                    |                        |                   |          |    |    |
| <b>Information:</b>                 |                        |                   |          |    |    |
| 31                                  | Fee Worksheet (PTO-06) | fee-info.pdf      | 8185     | no | 2  |
| <b>Warnings:</b>                    |                        |                   |          |    |    |
| <b>Information:</b>                 |                        |                   |          |    |    |
| <b>Total Files Size (in bytes):</b> |                        |                   | 62295941 |    |    |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.